CHAPTER V

SUMMARY OF FINDINGS, CONCLUSION & RECOMMENDATIONS

“Religion hinges upon faith, politics hinges upon who can tell the most convincing lies, but science hinges upon whether its conclusions resemble what actually happens”

Ian Stewart

This chapter presents a brief summary of the study and includes findings, conclusion, implications, limitations and recommendations for the future research in the field of child health nursing.

The aim of the present study was to assess the effectiveness of standard operating protocol on knowledge and practices of the nurses regarding care of paediatric patients on ventilator in paediatric intensive care unit at selected tertiary hospitals. The present study has adopted a quantitative quasi-experimental research approach. In order to get the projected results, the study focused on 80 nurses working in paediatric intensive care unit of selected tertiary care hospitals. 40 nurses in the experimental group and 40 nurses in the control group. Samples were selected as planned sampling criteria and structured questionnaire, observation checklist and inventory checklist to observe the practices of the nurses, all this was conducted on a validated tool. The data was tabulated and analysed using descriptive and inferential statistics.

SUMMARY:

A study conducted by Savita Sharma, Jyoti Sarin etal (2014) on “effectiveness of endotracheal suctioning protocols in terms of knowledge & practices of nursing personnel” the study aimed to evaluate the effectiveness of ET suctioning protocol in terms of knowledge & practices of nursing personnel. The structured knowledge questionnaire & an observation checklist regarding endotracheal suctioning was developed & used for data collection & the endotracheal suctioning protocol was also developed & nurses were educated as per protocols. An experimental approach was used with quasi experimental design. Pre-test and post-test implementation data from 30 purposively selected PICU nursing personnel. The findings of the study revealed that the mean post score of nursing personnel regarding ET suctioning was significantly higher than the mean pre-implementation knowledge and practice score.
(p>0.001) hence, the protocol was effective in enhancing the practices of nursing personnel regarding the ET suctioning.\(^1\)

In the similar manner, the present study showed that the needs of the patient on ventilator is neglected in the areas like intubation, extubation, monitoring children on ventilator, weaning from ventilator, feeding the patient on ventilator & collection of arterial blood gas are some of the aspects which needed change in the practices & could be improved with the help of educational interventions, clinical guidelines. The researcher found that there was as improvement in the knowledge & practices of the nurses but both were not always hand in hand.

**OBJECTIVES OF THE STUDY:**

**Phase - I**

1. To evaluate existing standard operating protocol in hospitals.
2. To evaluate existing practices.
3. To develop and validate standard operating protocol.

**Phase - II**

4. To assess the knowledge of the nurses, regarding care of paediatric patients on ventilator before & after the administration of standard operating protocol in the experimental and control group.
5. To evaluate the practices of the nurses regarding care of paediatric patients on ventilator before and after the administration of standard operating protocol in the experimental and control group.
6. To assess the usefulness of the protocol (with the help of semi structure opinionarrie)
7. To correlate the knowledge & practices of nurses regarding care of paediatric patients on ventilator among the experimental & control group.
8. To compare the knowledge & practice scores with selected demographic variables (age, years of experience educational qualification and gender.) in the experimental and control group.
METHODOLOGY

Research approach:

The research approach chosen for this study is Quantitative descriptive evaluative research approach.\(^{20}\)

Research Design:

The design used for this study is Quasi-Experimental non-randomized control group design. It is also known as the ‘non-equivalent control group design’. In this design, experimental & control groups are selected without randomization. Pre-test, observation of practices, introduction to standard operating protocol was done by the end of the week where all the nurses pre-test and observation was completed and then the standard operating protocol was given so that the contamination of the samples doesn’t take place. After 7 days post test was given. Observation 1, 2, 3 was done after 7, 14, 21 days respectively. Observations regarding practices of each standard operating protocol were done as per the availability of patient and procedure.

TOOLS AND TECHNIQUES:

Keeping the objectives of the study in mind and experts suggestions the researcher selected the following as her tools for data collection:-

- Standard Operating Protocol on the care of paediatric patients on ventilator
- A structured questionnaire
- An observation checklist
- An inventory checklist

Self-reporting technique was used the assess knowledge and reported practices, and observation technique was used to observe the practices.

VALIDITY:

Validation of the standard operating protocol was done by seven experts in the paediatric intensive care unit and expert in child health nursing. Among the seven experts, three PhD nurses, three doctors and one M.Sc (child Health Nursing) nurses.
Validity of questionnaire was done by nine experts from various fields in nursing.

Validity of the inventory checklist, observation checklist was scrutinized and validated by 9 experts in nursing, paediatric critical care, masters in child health nursing.

**RELIABILITY:**

Reliability done using Cronbach α for structured questionnaire and inter-rater reliability for observation and inventory checklist.

A total of 10 subjects were administered the tool for knowledge questions and 10 subjected were observed on the practices with the observation checklist, inventory checklist were administered to 10 subjects observation & self reported practices were scored. Cronbach’s alpha was calculated for the same using SPSS (Statistical Package for social science) software and the values obtained are as follows: 24

Presentation of the calculated reliability for the different areas of the tool:

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Content</th>
<th>Score</th>
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<tr>
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<td>Knowledge questionnaire</td>
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<tr>
<td>2</td>
<td>Observation checklist as follows: -</td>
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<td></td>
<td>1. Observation checklist for Endotracheal tube suctioning</td>
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<td></td>
<td>2. Observation checklist for Administration of intravenous injection</td>
<td>0.8434</td>
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<td></td>
<td>3. Observation checklist for Care of invasive lines</td>
<td>0.8191</td>
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<td>4. Observation checklist for administration of Enteral feeding</td>
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<td></td>
<td>5. Observation checklist for maintenance of Oral hygiene</td>
<td>0.8002</td>
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<td></td>
<td>6. Observation checklist for change of position &amp; back care</td>
<td>0.8347</td>
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<tr>
<td>3</td>
<td>Inventory checklist: -</td>
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<tr>
<td></td>
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<tr>
<td></td>
<td>2. Inventory checklist for Monitoring patients on ventilator</td>
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<td></td>
<td>3. Inventory checklist for Assisting in ABG (Arterial Blood Gas) collection &amp; its interpretation</td>
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<td></td>
<td>4. Inventory checklist for Weaning off from ventilator</td>
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**PILOT STUDY:**

Pilot study was done on total of 10 nurses, before starting pilot study ethical committee permission was taken purpose of the study was explained, their written consent was taken,
and the pre-test questionnaire was given to them to fill up observations were done and inventory checklist was also given to the nurses for scoring. Later standard operating protocols were introduced. Post test after 7th day and then their observations were done for practices. The pilot study helped the researcher to test the feasibility of the tool and technique.

**DATA GATHERING PROCESS:**

The data gathering process commenced on 18th November 2014 and ended on 30th December 2015 the investigator visited the Paediatric Intensive Care Unit of various private hospitals in Pune city prior to data gathering process & obtained permission from the concerned administrative authorities and the sister in-charge of each PICU, to conduct the study. They responded in positive and encouraging manner.

The study was explained in detail to the sample in each PICU and the investigator obtained their consent for participating in the study. The data collection was done from 9am to 9pm, so that all three shift morning, evening and night shift nurses could be observed. For certain observation of the skill the investigator had to visit early morning to the respective PICU. After completing the initial pre-test questionnaire and pre observation of all the staff nurses then the standard operating protocol were administered to the staff nurses.

Day 1 – the structured questionnaire to assess the knowledge of nurses regarding care of paediatric patients on ventilator was administered to the nurses in the PICU at one shift they were five to ten nurses depending upon the number of patients, after 30-45 minute duration the questionnaire was collected back from the staff. Before giving the questionnaire they were instructed of not discussing with each other, throughout the process they were under observation of the researcher. And then they were observed for their practices & scored on the observation checklist. Once completing with all the nurses of the concern hospital then the standard operating protocol was distributed to the nurses, & explained about the procedures given in the protocol, the quires was handled there & then. 30 minute duration for the same was given to them to ask any quires. After day 7 – post test was collected and the 2nd observation of the nurses was recorded on the checklist after the administration of the standard operating protocol. After day 14 – 3rd observation of the nurses was recorded on the checklist. And After day 21 – 4th observation of the nurses was recorded on the observation checklist. There were inventory checklists where the observations were taken pre-test and post-test. The same method was adopted for the control group. A total number of three
observations for observed practice scores were required to assess the effectiveness of the standard operating protocol. This pattern of data gathering process was continued till desired sample size was achieved.

**FINDINGS OF THE STUDY:**

A) **Analysis of demographic data of the nurses:**

Age of the nurses under the study varied from 21 years to 50 years with the mean age 25.73 in experimental group and 25.55 in control group nearly equal distribution. 75% (30) of nurses from the experimental group and 72.5% (29) nurses from the control group were in the age group of 21 – 25. Whereas 10% (four) nurses in the experimental group and 17.5% (seven) nurses in the control group were in the age group of 26-30 years. 7.5% (three) nurses from the experimental and control group were in the age group 31-35 years. In the experimental group 7.5% (three) nurses were above 35 years of age and only 2.5% (one) in the control group were in the age group of 35 years and above.

Gender wise distribution of nurses was 90% (36) of the nurses were females, and only 10% (four) were male in the experimental group. And in the control group 87.75% (35) nurses were female and 12.5% (five) nurses were male.

Experience varied from three months to fifteen years. Majority 47.5% (19) nurses had an experience of one to 3 years in the experimental group and 40% (16) in the control group. 22.5% (nine) of nurses had experience of three to five years in the experimental and control group. 5% (two) of nurses in the experimental group and 10% (four) of nurses in the control group had experience of 5 to 10 years and the remaining 10% (four) nurses in the experimental group and 2.5% (one) nurses in the control group had experience of ten years and above.

With regard to education of nurses, majority 50% (40) had Graduation in Nursing and 50 % (40) had done diploma in nursing.

The experimental group had majority of nurses with diploma in nursing (62.5%) (25) And Basic B.Sc Nursing was 37.5% (15).

Whereas in the control group majority of the nurses were qualified with Basic B.Sc Nursing 62.5% (25) and nurses with diploma was 37.5% (15).
Analysis of knowledge:-

B) Overall knowledge

The knowledge score of nurses in the experimental and control group was from poor to good in the pre-test and post-test. In the experimental group in pre-test, it was found that 30 (75%) of the nurses had an average knowledge, six (15%) had poor knowledge and only four (10%) had good knowledge. In post-test 31 (77.5%) nurses had good knowledge and nine (22%) nurses had average knowledge scores.

In the control group in pre-test, it was found that 28 (70%) nurses had an average knowledge seven (17.5%) nurses had poor knowledge and only five (12.5%) had good knowledge. In post-test there was no improvement seen because the standard operating protocol was not given to the control group as they had to practice the routine treatment and protocols of the unit. Five (12.5%) nurses had poor knowledge, 28 (70%) had average knowledge and seven (17.5%) had good knowledge. Therefore the improvement of knowledge in the experimental group may be attributed to the implementation of the standard operating protocol.

(i) Individual knowledge scores:

The knowledge score of nurses in the experimental group before and after the administration of standard operating protocol on care of paediatric patients on ventilator was that Out of the ten areas the maximum score was 58.33% (70 out of 120 scores) in “assisting for weaning off from ventilator” and the minimum score was 41.13% (180 out of 440 scores) in “suctioning of endotracheal tube”, whereas in post-test the maximum score was 83.12% (133 out of 160 scores) in “administration of intravenous injections” and the minimum score was 54.77% (241 out of 440 scores) in “suctioning of endotracheal tube”. This shows that there is a need of reinforcement and time to time in service education.

In the control group Out of the ten areas the maximum score was 58.33% (70 out of 120 scores) in “maintenance of oral hygiene” and the minimum score was 41.13% (180 out of 440 scores) in “suctioning of endotracheal tube”, whereas in post-test the maximum score was 83.12% (133 out of 160 scores) in “assisting for weaning off from ventilator” and the minimum score was 54.77% (241 out of 440 scores) in “suctioning of endotracheal tube”. The mild improvement that is seen in the control group without giving any intervention could be because of individual interest to know and self study taken up by the participant which
may have attributed to the change in the post test score while the drop in the post-test score in the control group may be due to uncertainty of the response by the participants.

(ii) **Testing of hypothesis with knowledge score:**

\( H_1 \) - there is no significant difference between the mean knowledge scores of nurses before and after implementation of the standard operating protocol in the experimental group at 0.05 level of significance.

In the experimental group the mean knowledge scores of the nurses before and after implementation of the standard operating protocol was significant at 0.05 level \((Z = 5.43 \& p = < 0.0001)\). Therefore \( H_1 \) is accepted.

(iii) **Comparison of knowledge score with selected demographic variables.**

In the experimental group there was no significant difference in the mean knowledge score of nurses between pre-test and post-test among the different age groups after implementation of standard operating protocols \((F = 1.77 \& 0.21 \text{ respectively for df } 2, 37 p = 0.18 \& 0.81 \text{ respectively as } p < 0.05 \text{ level of significance})\). Table value at \(0.05 = 3.25\).and also in the control group there was significant difference in the mean knowledge score of nurses between pre-test and post-test among the different age groups after implementation of standard operating protocols \((F = 0.20 \& 0.13 \text{ respectively for df } 2, 37 p = 0.82 \& 0.88 \text{ respectively as } p < 0.05 \text{ level of significance})\). The Table value at \(0.05 = 3.25\).

In the experimental group there was no significant difference in the mean knowledge score of pre-test among the experience wise groups before implementation of standard operating protocol \((F = 0.78 \text{ for df } 2, 37 p = -0.51 \text{ as } p < 0.05 \text{ level of significance})\). However the difference in the mean post test knowledge score among the different experience wise groups after implementation of standard operating protocol was significant \((7.19 \text{ for } df 2, 37 p = 0.001 \text{ as } p > 0.05 \text{ level of significance})\). While in the control group there was no significant difference in the mean knowledge score of nurses between pre-test and post-test among the experience wise groups after the implementation of the standard operating protocol. \((F = 1.43 \& 1.74 \text{ respectively for df } 2, 37 p = 0.25 \& 0.18 \text{ respectively as } p < 0.05 \text{ level of significance})\).

In the experimental group there was no significant difference in the mean knowledge score of the nurses according to education between pre-test & post-test \((Z = 1.36 \& 1.46 \text{ respectively where } p = 0.17 \& 0.14 \text{ respectively as } p < 0.05 \text{ level of significance})\). And in the control group
also there was no significant difference in the mean knowledge score of the nurses according to education between pre-test & post-test (Z=0.56 & 0.10 respectively where p=0.58 & 0.92 respectively as p>0.05 level of significance).

In the experimental group there was no significant difference in the mean knowledge score of male and female nurses between pre-test and post-test (Z=0.68 & 1.20 respectively where p=0.50 & 0.23 respectively as p<0.05 level of significance). Even in the control group there was no significant difference in the mean knowledge score of male and female nurses between pre-test and post-test (Z=0.61 & 1.04 respectively where p=0.54 & 0.29 respectively as p<0.05 level of significance).

C) Analysis of Observed practices:-

(i) Over all observed practice scores:

It was found that overall observed practice score varied from poor to good. The pre-test observed practice scores of nurses in the experimental group was average whereas after the administration of the standard operating protocol the post-test scores improved in the post-test I (day 7), and was sustained in post-test II & III in the experimental group on day 14 and 21 respectively. This improvement in the observed practice score may be attributed to the administration of the standard operating protocol. The pre-test observed practice scores of nurses in the control group was average and in the post-test of day 7,14 and 21 it remained average as there was no administration of standard operating protocol given to the control group as they were practicing their routine task. Hence their performance remained average.

(ii) Overall individual observed practice scores:

The observed practice score obtained area wise regarding care of paediatric patients on ventilator in the experimental group showed that in the pre-test observed practice score of nurses regarding “endotracheal tube suctioning” was 50.55% where as in the post-test I score increased to 98.45% and in post-test II it came down to 91.1% and in post-test III it was 86.2%. This drop of score may be attributed to not following the proper steps in sequence. The drop also may be because they have stopped referring the manual. The pre-test score regarding “administration of intravenous injections” was 65.45% which improved to 99.85% in post-test I, and reduced to 95.35% in post test II and further reduced in post-test III with the score 92.14. In the aspect regarding “care of invasive lines” pre-test score was 59.58% which improved in the post-test I with the score 99.85% and in the post-test II and III it
remained constant at 96.76% and 96.47% respectively. Whereas the “enteral feeding” the pre-test observed practice score was 66.66% there was a drastic improvement observed in the post-test II with the score 99.30% which further reduced to 91.11% in post-test II and in post-test III it was only 82.77%. In the pre-test observed practice score of “oral hygiene” was 49.31% which increased to 99.88% in the post-test I and in Post-test II it was 90.90% but it reduced to 84.77% in the post-test III. And the “back Massage” the observed practice score in pre-test was only 33.86% which drastically improved to 99.65% in the post-test I and the observed practice score in post-test II and III came down to 85.56% and 76.93% respectively. All this can be attributed to the effect of intervention. This shows that there is a need of reinforcement and time to time in-service education.

While the observed practice score obtained area wise regarding care of paediatric patients on ventilator in the control group. The pre-test observed practice score of nurses regarding “endotracheal tube suctioning” was 58.8%, “administration of intravenous injections” was 68.8% “care of invasive lines was 65.73% “administration of enteral feeding” was 64.58% “maintenance of oral hygiene” was 48.75% and “back massage” was 36.47% which remained unchanged in the post-test I, II, & III observations of practices on day 7th, 14th, and 21st respectively. This could be possible because there was no protocol administered carried out in the control where in they practiced routine care of paediatric patients on ventilator.

(iii) Testing of hypothesis with observed practice scores:

H₁ – There will be significant difference in the mean of pre-test and Post-test I, II, & III observed practice score after the administration of standard operating protocol on care of paediatric patients on ventilator in the experimental group at the 0.05 level of significance.

In the experimental group the mean post-test practice scores of nurses observed on day seventh first, second on day fourteenth and third observation on day twenty first after the implementation of nursing protocol was significant at 0.01 level of significance (Z=5.51, 5.51 & 5.51 > table value 2. This shows that the implementation of standard operating protocol was effective in improving the observed practice scores statistically. Whereas in the control group the post-test practice scores of nurses observed on first, second on day fourteenth and third observation on day twenty first after the implementation of standard operating protocol was not significant at 0.01 level of significance (Z=1, 1 & 1 < table value 2.
(iv)Comparison of observed practice score with selected demographic variables:

In the experimental group there was no significant difference in the mean observed practice scores of nurses before & after post-test I, II & III among the different age groups after the implementation of standard operating protocol (F=1.89, 0.56, 0.65 & 0.39 respectively for df 2,37 p=0.16, 0.58, 0.53 & 0.68 respectively p<0.05 and 0.01 level of significance). And also in the control group there was no significant difference in the mean observed practice scores of nurses before & after post-test I, II & III among the different age groups after the implementation of standard operating protocol (F=0.74, 0.76, 0.76 & 0.76 respectively for df 2,37 p=0.49, 0.48, 0.48 & 0.48 respectively p<0.05 and 0.01 level of significance).

In the experimental group there was no significant difference in the mean observed practice scores of the nurses between pre-test, post test II, & III among the experience wise groups after the implementation of standard operating protocols (F=1.67, 0.95 & 0.19 for df 2, 37 p=0.19, 0.43 & 0.90 respectively p< 0.05 & 0.01 level of significance but however there was significant different in post test I. (F=2.99 df 2,37 p=0.004 as p<0.05 & 0.01 level of significance). While in the control group also there was no significant difference seen. (F=2.36, 2.33, 2.33 & 2.33 df 2,37 p=0.088, 0.091, 0.091 & 0.091 respectively p<0.05 & 0.01 level of significance).

In the experimental group there was significant difference in the mean observed practice scores with educational qualification of nurses in pre-test (Z=2.55 and p= 0.011 as p>0.05 & 0.01 level of significance). However in post-test I, II, & III there was no significant difference seen. (Z=0.74, 0.27 & 0.20 respectively & p=0.46, 0.79 & 0.85 respectively p<0.05 & 0.01 level of significance). Even in the control group it was observed that there was no significant difference in the pre-test and post-test I, II, & III (Z=1.10, 1.16, 1.16 & 1.16 respectively df 2.37 p=0.27, 0.25, 0.25 & 0.25 respectively as p<0.05 & 0.01 level of significance).

In the experimental group there was no significant difference in the mean observed practice scores of male and female nurses before and after post-test I, II, & III after the implementation of standard operating protocol (Z=0.05, 0.44, 1.63 & 1.42 respectively whereas p=0.96, 0.66, 0.0 & 0.15 respectively as p<0.05 & 0.01 level of significance). And also in the control group there was no significant difference. (F=0, 0.04, 0.04 & 0.04 respectively where p=1, 0.97, 0.97 & 0.97 as p<0.05 & 0.01 level of significance).
D) Analysis of self-reported practices:

(i) Overall reported practice scores:

It was found that the overall reported practice in the experimental group 60% in the pre-test had an average score and 40% were scored good. Nurses’ in pre-test self-reported practices was average and only 40% nurses were good and in the post-test all the 100% nurses had good self-reported practice score. Where as in control group in pre-test 15% nurses had average self-reported practices and 85% nurses had good self-reported practices. And in post-test 12.5% nurses were with average self-reported practice score and 87.5% were with good self-reported practices.

(ii) Individual reported practice scores:

In the experimental group the pre-test the self-reported practice score of “endotracheal intubation” 25 (62.5%) nurses reported average practice score, and only 15 (27.5%) nurses reported good. Whereas practice score in “monitoring patients on ventilator” 30 (75%) nurses reported average practice score, 9 (22.5%) nurses reported good practice score and only one (2.5%) nurse reported poor practice score in the pre-test, whereas in post-test all 40 nurses reported good practice scores. In assisting for “Arterial Blood Gas analysis and its interpretation” in pre-test 8 (20%) nurses reported average practice score and 32 (80%) nurses reported practice score was good. In post test all the nurses reported good practice score. And in “weaning off from ventilator” during pre-test 29 (72.5%) nurses reported practice score was average and 11 (27.5%) nurses reported good practice score. In post test all the nurses reported practice score was good. And in the control group the pre-test the reported practice score of “assisting for endotracheal intubation” was 19 (47.5%) nurses reported average practice score and only 21 (52.5%) nurses’ reported good practice score whereas in post test which was taken after 7 days 19 (47.5%) nurses reported practice score was average and 21 (52.5%) nurses reported good practice score. As the standard operating protocol was not given to the control group the practice score remained constant even in post-test. In “monitoring patients on ventilator” 24 (60%) nurses reported average practice score, 15 (37.5%) nurses reported good practice score and only one (2.5%) nurse reported poor practice score in the pre-test, whereas in post-test it continued to remain the same. In “assisting for ABG collection and its interpretation” in pre-test three (7.5%) nurses reported average practice score and 37 (92.5%) nurses reported practice score was good. In the post test one (2.5%) nurse had average reported practice score and 39 (97.5%) nurses had good
reported practice score. In “weaning” during pre-test 22 (55%) nurses reported practice score was average and 18 (45%) nurses reported good practice score. In post-test 21 (52.5%) nurses reported practice score was average and 19 (47.5%) nurses had good reported practice score.

(iii) Testing of hypothesis with self-reported practices:

There will be significant difference in the mean of pre-test and Post-test self-reported practice score after the administration of standard operating protocol on care of paediatric patients on ventilator in the experimental group at the 0.05 level of significance.

Overall Practice Hypothesis:

H₂ – There will be significant difference in the mean of pre-test and Post-test overall practice scores of nurses after the administration of standard operating protocol on care of paediatric patients on ventilator in the experimental group at the 0.05 level of significance.

The mean self-reported practice score of nurses before and after the implementation of standard operating protocol was significant at 0.01 level (Z=5.51 and the mean difference was 114.43) This shows that the implementation of standard operating protocol was effective in improving self-reported practices statistically.

Whereas in control group there was no significant difference at 0.01 level (Z=1.86 and the mean difference was 83.03) and therefore the research hypothesis was rejected. As there was no implementation of standard operating protocol given hence there was no improvement in self-reported practices seen in the control group.

The mean overall practice scores of nurses after the implementation of standard operating protocol was significant at 0.05 level (Z=5.51 & the mean difference was 250.20) research hypothesis was accepted. This shows that the implementation of standard operating protocol was effective in improving the overall practices statistically. Therefore H₂ was accepted.

(iv) Comparison of self-reported practice scores with selected demographic variables:

In the experimental group there was no significant difference in the mean self-reported practice scores of nurses before and after implementation of standard operating protocols among the different age group. (F=3.17 & 0.38 respectively for df 2, 37 p=0.053 & 0.68
as \( p<0.05 \) & 0.01 level of significance. Also in the control group there was no significant difference. (F=0.003 & 0.06 respectively for df 2, 37 \( p=0.997 \) & 0.94 as \( p<0.05 \) & 0.01 level of significance).

In the experimental group there was significant difference in the mean self-reported practice scores of nurses before the implementation of the standard operating protocol among the experience wise groups (F=4.02 \( p=0.014 \) as \( p>0.05 \) & 0.01 level of significance). But in post-test there is no significant difference. (F=1.16 for df 2, 37 \( p=0.34 \) as \( p<0.05 \) & 0.01 level of significance). But in the control group there was no significant difference (F=0.42 & 0.23 respectively for df 2, 37 \( p=0.73 \) & 0.87 as \( p<0.05 \) & 0.01 level of significance).

In the experimental group there was significant difference in the mean self-reported practice scores of nurses before the implementation of the standard operating protocol among the different educational groups (Z=3.34 \( p=0.001 \) as \( p>0.05 \) & 0.01 level of significance). But there was no significant difference in the mean self-reported practice scores of nurses after the implementation of the standard operating protocol among the different educational groups (Z=0.69 \( p=0.49 \) as \( p<0.05 \) & 0.01 level of significance). But in the control group there was no significant difference in the mean self-reported practice score of nurses before and after implementation of standard operating protocols among the different educational groups. (Z=1.74 & 2.10 respectively \( p=0.082 \) & 0.035 \( p<0.05 \) & 0.01 level of significance).

In the experimental group there was no significant difference in the mean self-reported practice score of male & female nurses before & after implementation of protocols (Z=0.05 & 0.58 respectively where \( p=0.96 \) & 0.56 as \( p<0.05 \) & 0.01 level of significance). In the control group also there was no significant difference in the mean self-reported practice score of male & female nurses before & after implementation of protocols (Z=1.04 & 0.74 respectively where \( p=0.30 \) & 0.46 as \( p<0.05 \) & 0.01 level of significance).

**E) Correlation between the knowledge and practices of the nurses regarding care of children on ventilator:**

The pre-test findings revealed that in the experimental group there was negative correlation between the knowledge & overall practices as ‘r’ is -0.16 but there was very low correlation
between the knowledge & self-reported practice as ‘r’ was 0.20. However there was negative correlation between the knowledge and observed practices as ‘r’ was -0.30. And in the control group there was negative correlation between knowledge & overall practices as ‘r’ is -0.07, but there was low correlation between knowledge & self-reported practice as ‘r’ is 0. However there was negative correlation between knowledge and observed practices ‘r’ is -0.10.

The Post-test findings revealed that in the experimental group there was very low correlation between the knowledge and overall practices as ‘r’ is 0.26, similarly there was very low correlation between knowledge & observed practice scores ‘r’ is 0.20 but however there was no correlation between knowledge & self-reported practices ‘r’ is 0.04. And in the control group there was no correlation between knowledge and overall practice, knowledge and observed practices and also knowledge and self-reported practices. ('r' is -0.20, -0.09 & -0.21 respectively).

F) Analysis of opinionarrie regarding standard operating protocol on care of paediatric patients on ventilator:

The opinion of the nurses regarding standard operating protocol on care of paediatric patients on ventilator was that 100% samples felt that the standard operating protocol was useful to them. 100% sample felt that the content in the standard operating protocol on care of paediatric patients on ventilator was adequate. Besides this 100% nurses found the language used in writing the protocol as simple clear and easy to implement. When an open ended question was asked regarding adding any content was needed 92.5% nurses said that it was adequate, whereas 2.50% nurse felt hand washing could have been included, 2.50% nurses felt different types of ventilator and its setting also could have been included, and 2.50% nurse felt that theoretical aspect of ventilator functions and elaboration on high frequency ventilator could have been included. The present standard operating protocol was emphasised on the care of paediatric patients on ventilator which included the basic care because competency of skill was needed in the basic skill in the survey done by the Investigator as there was lack of skill identified in the basic care.

CONCLUSION:

This study was done to assess the effect of standard operating protocols on knowledge & practices of the nurses while caring the paediatric patients on ventilator.
The researcher was able to achieve all the objectives of the study Quasi-Experimental non-randomized control group design. The analysis showed significant increase in the knowledge and practice scores among the nurses.

The researcher found that majority of nurses had average and good knowledge but were not practicing it. Practice needs more attention and supervision. Administration control and rewards for good work shows better performance.

**NURSING IMPLICATION:**

**Nursing Services:**

Nurse is a very important person in the intensive care unit and nursing care of the ventilated patients are the vital procedure in the paediatric intensive care unit. It is through these competent procedures that the nurses in the PICU can prevent complications in the children who are on ventilator and bring down the mortality and morbidity rate in the PICU. It is considered to be one of the most important tasks of the nurses. Besides this the nurses working in the PICU will develop confidences in their care while referring the protocols. The newly appointed nurses can also make use of the guideline regarding their responsibilities in the PICU & will follow a uniform pattern in order to cater to the basic needs of the ventilated children.

**Nursing Education:**

Effective delivery of nursing services is taught to the nurses during their training period. At the time of clinical posting the students are hesitant to work in the PICU because there is no competency of the procedures but with the help of these nursing protocols the students will get the guidelines of the steps to be followed for a given procedure systematically & provide the nursing care to the children who are ventilated. Along with this they will also learn o what observations are to be made and how the monitoring has to be done.

**NURSING ADMINISTRATION**

Protocols are the most important document maintained in a PICU, a PICU with a complete protocol is considered to be one of the good functioning PICU. In most of the
private hospital which are NABH accredited have the protocol but not necessary all the NABH hospitals will have the protocol for the PICU’s. protocols help in developing orientation for the nurses before appointing them in PICU. Reference to protocols will help in evaluating the care towards the patient as well as assessing the nurses for their efficiency.

NURSING RESEARCH:

Nurses should be encouraged to conduct evidence based researches. And the findings should be incorporated in actual practices. The tools & technique are the findings of the study that has added to the body of nursing knowledge.

SUGGESTIONS & RECOMMENDATIONS:

For Future study:-

Keeping in view the findings of the study the following recommendations are made.

1. A comparative study can be done with private and government settings to find significant difference in knowledge & practices.
2. Similar kind of study can be done with single protocol
3. Similar study can be done in NICU
4. Follow up study can be done to assess the attitude of nurses regarding the use of nursing protocol in the PICU.